Observations of the Great Comet (b), 1882, *made at the Sydney Observatory.* By H. C. Russell, B.A.

I enclose herewith meridian observations of the comet on four days. They were taken with a Simms' Transit Circle, recently made, and having a 6-in. (clear) objective. The observations have been corrected for all instrumental errors and for refraction. I may mention that the correct longitude for Sydney, $10^h\ 4^m\ 50^s{\cdot}8$, is given in the *Nautical Almanac* for 1885; that for 1884 and previous years give the old longitude, which was incorrect. The comet was reported to me on Sept. 7 by Mr. Springwell, chief officer of the steamer *Caraki*. I saw it first on the 8th, but the daylight made it impossible to get stars for comparison with the equatorial. I have examined it with the spectroscope, and find a very bright continuous spectrum without the usual comet lines; but there is one bright line in the yellow which, so far as I have yet been able to ascertain, is coincident with the sodium line. I have not been able to see any dark lines in the continuous spectrum.

The comet presents a magnificent spectacle in the morning now. On Sept. 17 I watched it most of the day; it was like a bright star near the Sun, and with the telescope was seen to have a well-defined nucleus and coma with concentric layers, the outer one being the best defined.

Observations of the Great Comet (b), 1882, *taken on the Meridian at Sydney.*

1882.	R.A. h m s	N.P.D. ° ′ ″
Sept. 18	11 25 33·25	89 10 50·35
19	11 18 7·72	90 3 48·63
20	11 12 19·68	90 51 12·84
21	11 7 30·81	91 34 51·39

Sydney Observatory:
1882, *Oct.* 5.

Observations of the Great Comet (b) 1882, *made at Windsor, New South Wales.* By John Tebbutt.

About noon on the 8th inst. the Government astronomer at Melbourne telegraphed to me "a large comet reported due east at 4h. a.m." Other messages were received during the day from different parts of this colony. From the information thus afforded I was enabled to get observations on the mornings of the 9th and 10th. The nucleus was very large and remarkably brilliant, and the tail about three or four degrees in length. Owing to the strong twilight there were no stars visible sufficiently near to the comet to be within reach of the threads of the filar-micrometer, and I was, therefore, obliged to have recourse to

a square bar-micrometer. By this means I made comparisons on both mornings with star B.A.C., 3303. The transits were observed on opposite sides of the square, and are, therefore, not so satisfactory as I could wish. The following are the results corrected for differential refraction and the comet's proper motion.

	d h m s	d h m s
Windsor Mean Time, 1882, Sept. ...	8 17 54 52	9 17 49 45
Mean R.A. of Star, 1882·0	9 33 49·76	9 33 49·76
Reduction to App. R.A. for date ...	+ 1·84	+ 1·86
Difference R.A. (Comet−Star) ...	+ 3 15·90	+ 11 56·19
Apparent R.A. of Comet	9 37 7·50	9 45 47·81
Mean N.P.D. of Star 1882·0 ...	90° 36′ 27″·6	90° 36′ 27″·6
Reduction to App. N.P.D. for date ...	+ 10·8	+ 10·7
Difference N.P.D. (Comet−Star) ...	+ 21 8·0	+ 16 57·9
Apparent N.P.D. of Comet	90 57 46·4	90 53 36·2
Log. Factor for Parallax in R.A. $\left(\frac{p}{P}\right)$	−8·7115	−8·7187
Log. Factor for Parallax in N.P.D. $\left(\frac{q}{P}\right)$	+9·7365	+9·7370
Number of Comparisons	4	2

The star's mean place has been deduced from the following authorities:—Schjellerup, Radcliffe Observations, 1858, and Annales de l'Observatoire Royal de Bruxelles, Cat. 1874. Up to the present time no further observations could be made, in consequence of fog and cloud, but as the comet is fast approaching conjunction with the Sun, it is probable that it will be visible in the evenings in the west.

Windsor, N. S. Wales:
1882, *Sept.* 15.

Observations of the Great Comet (b), 1882. By A. V. Nursing Row.

A comet is now visible in the eastern heavens before sunrise, and is so conspicuous to the naked eye as to attract general attention. It presents a bright planetary disk, surrounded by nebulosity. On applying higher magnifiers this appearance vanishes, the centre of the head not being occupied by a star-like point.

The head has a border of light surrounding it on the side towards the Sun, and continued round on each side of the tail.

The disk has been undergoing changes of form and apparent diameter for twelve days. The length of the bright part of the tail is between 7° and 8°, above which are narrow rays or streaks of light extending more than 12°—concave towards the south,